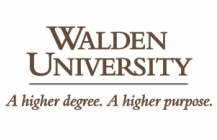

2017

Use of Tai Chi to Treat Mental Health Disorders in Veterans

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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2017

Abstract

Use of Tai Chi to Treat Mental Health Disorders in Veterans

by

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MSN, Vanderbilt University, 2008

BSN, Middle Tennessee State University, 2007

Project Submitted in Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

Clinicians have a challenge of discovering and implementing new ways to address their patients' health concerns. Some healthcare needs are not completely managed with pharmacotherapy and invasive procedures alone. Military veterans compose a special group due to multiple needs related to physical and emotional symptoms resulting from exposure to trauma. This project explored the benefits of a Tai Chi recreational therapy program. The goal of this trial was to examine gentle movement routines of Tai Chi for emotional benefits for veterans. The literature review provided insight from current evidence into the probable outcome of including alternative medicine options into regular practice for veterans coping with mental health illness. Veterans can find Tai Chi effective for self-management of anxiety, simple strength building and positive social interactions. With better management of mood symptoms from the practice of Tai Chi, pharmacotherapy use may be reduced. The Kirkpatrick model was used to evaluate the effectiveness of training. Although a small sample ($n = 9$), the results from patients via open ended questionnaire about their Tai Chi experience confirmed its benefit for better management of anxiety symptoms, as well as increased stamina and reduced back pain. Tai Chi has the potential to offer an independent method for managing various symptoms. Complementary alternative medicine such as Tai Chi should be seriously encouraged for self-management of various emotional and physical symptoms. Tai Chi practice incorporated into treatment plans contribute to social change by reducing medicinal use, symptoms exacerbation and financial cost for treating symptoms.

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Section 1: Introduction

Introduction

There are an estimated 23.4 million veterans in the United States and about 2.2 million active military service members and 3.1 million immediate family members (Substance Abuse & Mental Health Services Administration, 2014). Since 2001, 2.4 million active duty and reserve military personnel were deployed to the wars in Iraq and Afghanistan (National Council for Behavioral Health, 2012). Approximately 18.5% of service members returning from Iraq or Afghanistan have post-traumatic stress disorder (PTSD) or depression during deployment with 50% of returning service members seeking assistance for treatment for mental health conditions (Substance Abuse & Mental Health Services Administration, 2014). Other mental health disorders are estimated to affect 11.6% of those without PTSD or major depression (National Council for Behavioral Health, 2012).

Healthy People 2020, the fourth generation of this initiative, is a set of science-based benchmarks to encourage health promotion and disease prevention (Office of Disease Prevention & Health Promotion, 2017). PTSD is recognized by Healthy People 2020 as an emerging issue with regard to combat veterans and communities affected by large-scale traumas such as mass shootings, terrorist attacks or natural disasters (Office of Disease Prevention & Health Promotion, 2017). Healthy People 2020 encourages promotion of mental health and social wellbeing by improving long-term coping skills and treatment resources (Office of Disease Prevention & Health Promotion, 2017). Mental health disorders affect various facets of the patient's life.

Problem Statement

Emotional and health morbidities combined can result in increased clinic visits, polypharmacy trials, and declining health resulting in increased hospitalizations, decreased productivity and reduced quality of life. This combination of emotional and health morbidities poses a significant concern to veterans as well as the general population. Reactions to war experiences are a common factor for suicidal thoughts for many veterans (Substance Abuse & Mental Health Services Administration, 2012). Flaws in coping skills or lack of social support reduce an individual's ability to recovery from traumatic events (Substance Abuse & Mental Health Services Administration, 2012). Untreated mental disorders and risk factors such as frequent deployments, traumatic events, injuries and substance abuse increase the risk of suicidal ideation (Substance Abuse & Mental Health Services Administration, 2012).

Patients coping with PTSD often experience an overlap and exacerbation of other mental health symptoms. PTSD sufferers frequently experience depression, anxiety, hyperarousal; poor sleep pattern, anger, and hyperviligence among other symptoms. Anxiety disorders in many cases are diagnosed concurrently with depression (Pfeiffer, Ganoczy, Ilgen, Zivin, & Valenstein, 2009). Depression and concurrent anxiety disorders increase the risk of suicidal ideations (Pfeiffer et al., 2009).

Mental health disorders are often treated with medications and psychotherapy without complete remission of symptoms. Mental health services can be costly to patients and facilities alike. For example, PTSD treatment cost in 2012 included therapy, outpatient services, hospitalization, emergency department visits, pharmacy services, and

nonmedical services, as well as indirect costs such as lost worker productivity (McElroy, 2014). The average treatment cost per year was $7,778 (McElroy, 2014). Veterans in their first year of PTSD treatment cost the U.S. Department of Veterans Affairs (VA) hospitals $8,300. This is four times higher than the cost to treat patients without PTSD, which cost the VA $2,400 (Thompson, 2012).

Katzman noted in 2011 that half of patients treated for anxiety with antidepressant medications did not report complete absence of anxiety symptoms. This combination of emotional and health morbidities poses a significant concern to veterans as well as the general population.

Research suggests that adjunctive therapy such as Tai Chi, a martial art practice, can improve patient stability for various emotional and physical symptoms (Jahnke, Larkey, Rogers, Etnier, & Lin, 2010). Tai Chi has potential to improve muscle strength, balance, and sleep. Tai Chi teaches the participant to relax through a greater connection with the body and awareness of the participant's own movements and thoughts, offering a coping tool for self-management symptoms. Tai Chi is credited with providing systematic feedback similar to aerobic exercise; however, it is less physically demanding, making this practice more accessible to most participants (National Center for Complementary and Alternative Medicine , 2009, Field, 2011, Hasel, n.d.).

Purpose Statement

The purpose of this project was to determine the effectiveness of a Tai Chi recreational therapy program at a large VA Hospital. The project question is: What are the benefits of a Tai Chi recreational therapy program? The responses from the veterans

provided information about the effectiveness of Tai Chi as a complementary alternative in the treatment of PTSD and offered practitioners an alternative treatment that has the potential to decrease the use of pharmacological interventions, the side effects caused by these agents, and the cost as well as improving the quality of life for individuals with PTSD.

Nature of the Doctoral Project

This project explored the benefits of the Tai Chi program from July 2015 to July 2017. There was a need to confirm the effectiveness of the Tai Chi program for veterans coping with chronic emotional symptoms. Questionnaires were administered to patients by staff for analysis. Identifying viable methods of self-management of symptoms provides patients and providers options other than dependence on pharmacotherapy.

Significance to Practice

Complementary alternative medicine (CAM) refers to treatments not considered to be standard to the current practice of Western medicine, offering nonpharmaceutical treatment with a focus on wellness (Strauss & Lang, 2012). The CAM Tai Chi is designed to strengthen and stretch the body, improve the flow of blood and other fluids throughout the body, improve balance, and boost proprioception (awareness of how the body moves through space), all of which positively impacts emotional wellbeing (Hempel et al., 2014).

Because CAM therapies can be practiced in groups and require few resources, payers and employers will see a reduction in care costs as patients report fewer symptoms

with participation. Providers and patients will benefit from CAM therapies by reduction in symptoms and less risk of side effects with long term use over medicinal treatments.

Mental health well-being is a significant factor to a person's quality of life (Wang, et al., 2009). Each vital component of a patient's life, mental, physical and social, have the capability of creating a storm of negative outcomes on the other components. Mental stability involves coping skills, unimpaired cognition, and reasonable social stability. Mental stability presents differently for each patient objectively and subjectively, so by acknowledging that patients may not respond to the same traditional treatments in the same way makes it imperative that alternative treatment methods are considered. The patient's values and beliefs must be considered as treatment emphasis should be on whole health and not disease pathology only (Wang et al., 2009). Patients' desire to improve their health and physical fitness and provider encouragement are all factors contributing to their behavior change. Patients wanting to have an active role in their healthcare tend to be more open to the idea of CAM therapies. CAM participation has a positive correlation with health promoting behaviors such as prescreenings, diet, and exercise, steering communities to social change (Williams-Piehota, et al., 2011).

Summary

The Tai Chi routine can bring about mindfulness for participants. Mindfulness effects attention regulation, body awareness, emotion regulation, and perspective of self (Hölzel, et al., 2011). Tai Chi and mindfulness contribute to the patient's self-management of anxiety symptoms. Tai Chi practice has the potential to reduce medicinal use, symptoms exacerbation, and financial cost for treating anxiety symptoms. Utilizing

CAM such as Tai Chi to reinforce meditation and physical strengthening techniques and as an outlet to direct emotions rather than an excessive use of prescription medications is optimal. It will be a challenge to maintain veteran interest in a CAM program as the results may not be immediate as expected in medication use. Reprograming patients to focus on their ability to retrain their thinking over seeking immediate gratification through medication, emotionally acting out, or substance abuse is a challenge worthy of clinician and patient consideration. In conclusion, with regular Tai Chi practice, veterans are provided a method to manage their symptoms while possibly reducing pharmacotherapy use and dependence on their providers. In the next section, the Kirkpatrick model is reviewed as framework for the project.

Section Two: Background and Context

Introduction

Poorly controlled emotional and health comorbidities diminish quality of life and add to treatment costs, medication trials, hospitalizations, and negative self-image. In this section I offer the project model as well as VA hospital's position on alternative medication. Nurses are tasked with promoting well-being, and this can be encouraged with alternative therapies. This section identifies the guiding framework and how the evidence was generated for the project.

Tai Chi practice is a union of autonomic and somatic responses through integration of motion and quietness. The effort to maintain focus on current existence trains participants to control their breathing and posture and to meditate to manage anxiety (Song et al., 2014). Tai Chi is an aerobic exercise that is an effective and cost-efficient treatment alternative to manage PTSD. Any form of daily exercise is beneficial for the physical and emotional state; however, Tai Chi is a practice that can be utilized for individuals with disabilities. As clinicians promote physical activity for health, this specific exercise is a simple and safe routine that can have a positive impact on emotional disorders. Establishing a Tai Chi program in rehabilitation centers, psychiatric units, and community settings will provide physical and emotional strengthening without the worry of excessive use of medications, clinician shortages, and financial toll to patients all while allowing the patient to be independent.

Concepts, Models, and Theories

This project explored the benefits the Tai Chi recreational therapy program. The Kirkpatrick (2006) model was used as the framework for the project. The model is a global standard for evaluating the effectiveness of training and is applicable to formal or informal training across four levels (Klenke, 2013). Kirkpatrick noted in his commentary that when reactions are positive, participants are more involved, and the chances of learning are improved. Behavior changes occur attributed to knowledge, skills, and attitudes that are taught during the training (Kirkpatrick, 2006).

Kirkpatrick Model Levels

Level 1. *Reaction* reflects how the patients felt about Tai Chi practice. This level of evaluation inquires to the patients' perceptions of the training, such as if they favored the training for their needs?

Level 2. *Learning* addresses to what extent patients' knowledge, skills and attitude improved. At this level patients are asked to describe their awareness of Tai Chi since the practice trial.

Level 3. *Behavior* questions if patients changed their behaviors towards coping with their emotional symptoms since learning Tai Chi. Patients are asked if Tai Chi practice reduced their use of more traditional treatments such as psychotherapy and pharmacotherapy.

Level 4. *Result* asks for insight into patients' benefits from Tai Chi practice, if they are using practice regularly and whether their emotional symptoms are reduced.

Definitions of Terms

Complementary alternative medicine (CAM): Healing practices and products that work in conjunction with traditional medicine.

Post-traumatic stress disorder: A mental condition that may affect a person who has been exposed to a traumatic experience and usually causes depression and anxiety.

Tai Chi: A Chinese practice that involves slow, smooth body movements to achieve a state of relaxation of both body and mind.

Relevance to Nursing Practice

The fundamental responsibilities of a nurse are to promote health, facilitate healing, and alleviate suffering (American Association of Colleges of Nursing , 2006). Understanding the body-mind-spirit connection, nursing care can be provided holistically (American Association of Colleges of Nursing , 2006). The nurse strives to see the client as a whole by respecting cultural backgrounds and autonomy and providing professionally appropriate care (American Association of Colleges of Nursing , 2006). As patient advocates, nurses need to understand the basic principles of what CAM therapies are appropriate for their patients and how the practice would benefit the patient's prognosis. Nurses who support CAM therapies have the task of being aware of up to date information for maximum patient self-efficacy (Chang & Chang, 2015).

Local Background and Context

In a survey presented in 2011 concerning CAM practice in the Department of Veterans affairs, 89% of VA facilities offered CAM therapies compared to 84% in 2002. The five most common CAM therapies offered to veterans were meditation (72% of VA

hospitals), stress management/relaxation therapy (66% of the hospitals), guided imagery (58%), progressive muscle relaxation (53%), and biofeedback (50%; Strauss, Lang, & Schnurr, 2016). A study by researchers at the San Diego VA hospital assessed women before and after they took part in 10 weeks of yoga practice in classes and at home. These women veterans reported improvements in pain and energy levels and in their overall mental health status from yoga. Women in the study showed greater improvements than men who had completed a similar program (Groessl, Weingart, Johnson, & Baxi, 2012).

The VA has been transforming its approach from problem-based disease to patient centered health care. This new approach, the whole health model, focuses on a personalized, proactive, patient-driven treatment plan. The concept of whole health is represented in the components of the proactive health and well-being wheel. The model acknowledges the power of the mind, that the mind directly affects the state of the body in both positive and negative ways. The body's ability to heal and cope better with mental and physical stress is aided by mind-body techniques such as Tai Chi, relaxation breathing, guided imagery tools, and mediation, among many other practices.

Role of the DNP Student

I am a nurse practitioner in an outpatient psychiatric clinic at a VA Hospital in the southeast United States. I was exposed to Tai Chi practice during a wellness coach seminar at the VA Hospital. I immediately sensed the benefits of practice for myself and felt Tai Chi exposure could be an adjunctive treatment option for veterans. I expressed my idea to our recreational therapy department. The department later hosted a Tai Chi trial for veterans. I frequently treat combat veterans coping with PTSD, depression,

insomnia and various physical ailments limiting activity. I encourage use of mindfulness to conquer anxiety symptoms. I frequently refer veterans to the recreational therapy department for complementary services. I can now offer a positive presentation to VA leadership to maintain CAM opportunities for veterans.

Summary

The VA's whole health model presents a patient-centered health care approach. This direction from problem-focused management addresses a gap in care by encouraging patients to fully engage in their treatment planning as opposed to allowing the provider to solely strategize their recovery. Tai Chi is a mind-body technique that has benefits for relief of emotional and physical symptoms. By the VA offering training in this practice, Veterans are provided more treatment options to consider for their recovery.

Optimally, the VA hospital will continue this fitness intervention through recreational services with new evidence of its effectiveness; otherwise, veterans will be referred to community resources such as YMCA, martial arts studios, or private trainers at the veteran's expense for continued support. Bridging the gap between the VA hospital and its community can be a benefit for veterans to bring them options not regularly provided by the VA at the current time. Recognizing that patients have individual needs and goals and respond to treatments differently is imperative to bringing alternative treatment options to the facility. Providing Tai Chi is in line with the VA patient-centered care model to provide personalized proactive patient-driven health care to veterans. Whole health care focuses attention on the patient as an individual and creates plans

based on the patient's input. Tai Chi offers an independent method for managing chronic symptoms and has been linked to self-reported and observed improvement in symptoms.

Section 3: Collection and Analysis of Evidence

Introduction

CAM is commonly used to help veterans manage stress and promote general wellness. CAMs have been used to treat PTSD, depression, back pain, headache, arthritis, and substance abuse. One of the greatest challenges to CAM is confirming popular claims about the effectiveness of therapies that have not been rigorously tested in research. According to a 2011 report, about nine in 10 VA facilities provide CAM therapies or refer patients to licensed practitioners. The most common CAM therapy is meditation (Strauss et al., 2016). This section provides a summary of current practice and evidence supporting implementation of Tai Chi in treatment regimens.

Practice-Focused Questions

The purpose of this project was to discuss the perceptions of practice from veteran patients in the Tai Chi recreational therapy program. The project question was:

PQ: What are the benefits of a Tai Chi recreational therapy program at a large VA hospital?

Sources of Evidence

I explored online databases from Walden University Library including PubMed, EBSCO, CINAL, Psych Lit, Cochrane, Medline and ERIC. Keywords included *anxiety, depression, PTSD* and *Tai Chi.* Additionally, patient questionnaire analysis was completed guided by the Kirkpatrick model. The data was analyzed for common themes.

Published Outcomes and Research

Anxiety Disorders

There are three main causes of fears. They are acquired by experiencing disturbing or damaging events, by vicarious acquisition such as a serious illness experienced by a relative or close friend, or by absorbing threatening information (Rachman, 2012). The rate of anxiety disorders is nearly doubled in veteran populations (33%) whereas the rate for the general population is 18.1% in a 12-month (2010) prevalence rate (Barrera et al., 2014). Undertreated anxiety oftentimes is mistaken for or contributes to other significant medical events (Barrera et al., 2014). Anxiety disorder symptoms tend to present as autonomic arousal, restlessness, fatigue, poor concentration, irritability, and insomnia (Cuijpers et al., 2014). Anxiety is often associated with other chronic ailments making effective treatment for anxiety challenging when health triggers continue to be an active factor (Katzman, 2011). Emotional and physical morbidities combined can result in increased clinic visits, polypharmacy trials, and declining health resulting in increased hospitalizations, decreased productivity, and reduced quality of life.

Post-Traumatic Stress Disorder

PTSD is a psychological response to trauma exposure such as physical assault, rape, accident, disaster, witness to death or injury, and combat (Milanak, Gros, Magruder, Brawman-Mintzer, & Frueh, 2013). Not every individual exposed to trauma will cope with PTSD symptoms in the future. Information from the VA website suggests 60% of men and 50% of women experience at least one trauma in their lifetime (Milanak et al.,

2013). About 8% of the population in their lifetime or 5.2 million during a given year will cope with PTSD (Milanak et al., 2013). Combat-related PTSD in U.S. military veterans from the Vietnam War to the Iraq conflicts ranges from about 2% to 17% and about 6% to 31% lifetime prevalence (Richardson, Frueh, & Acierno, 2010). Studies of recent war conflicts suggest that combat-related PTSD afflicts between 4% and 17% of U.S. Iraq veterans. Many traumatic events are related to injury to the victim resulting in chronic pain, which makes anxiety and depression symptoms more resistant to treatment (Beck & Clapp, 2011). Persons suffering from PTSD often suffer from substance use disorder as a means of coping with the trauma (Boden et al., 2013).

Depression Disorders

Prolonged stress and injury can also initiate depressive moods. Depression causes difficulties with the afflicted person's day-to-day lifestyle (Niv et al., 2011). Depression commonly manifests by change of appetite, weight, anhedonia, inability to concentrate, and recurrent thoughts of suicide (Niv et al., 2011). Untreated depression contributes to physical ailments, suicide, marital problems, and loss of productivity (Osei-Bonsu et al., 2014). Self-regulation of illness is positively or negatively impacted by the afflicted person's coping strategies. The coping strategies can be of positive nature such as social support, pleasant activities, and religious beliefs, whereas negative behaviors such as substance abuse and emotional avoidance aggravate depressive symptoms (Osei-Bonsu et al, 2014).

Traditional Treatment Methods

Selective serotonin reuptake inhibitors (SSRIs) and serotonin-norepinephrine reuptake inhibitors (SNRIs) are widely recommended for pharmacological treatment of PTSD (Jain, Greenbaum, & Rosen, 2012). These medications are also used for anxiety and depression symptoms. However, veterans prescribed sertraline for 12 weeks showed no differences compared with placebo in changes on the Clinician-Administered PTSD Scale (Jain et al., 2012). If SSRIs and SNRIs offer limited or no benefit, then other medication trials will be initiated, increasing sensitivity risk. In a research study by Jain et al. (2012), in absence of a clearly indicated co-occurring psychiatric diagnosis, long-term benzodiazepines were prescribed in association with symptoms of insomnia. A mental health hospitalization and least one psychotherapy visit were predictors of a second-generation antipsychotic trial.

Benzodiazepine medication such as Xanax proved beneficial but came with serious side effect potential. Benzodiazepine use and subsequent discontinuation of use could lead to heightened rebound symptoms, withdrawal symptoms, cognitive impairment, and other negative consequences of use (Katzman, 2011). Pfeiffer et al. (2009) found that 41.5% of depressed veterans had a comorbid anxiety disorder. PTSD was the most common diagnosis with 22.5% and anxiety disorder not otherwise specified was the second most common with 20%. Rates of anti-anxiety medication use by comorbid anxiety disorder were: 37% for PTSD, 50% for anxiety disorder not otherwise specified, 65% for panic disorder, 58% for generalized anxiety disorder, 46% for social phobia, 46% for OCD, and 54% for all anxiety disorders (Pfeiffer, et al., 2009). Odds for

suicide were higher for patients who received an anti-anxiety medication (OR 1.82, 95% CI: 1.65-2.00), and the odds were even greater among those prescribed high doses of anti-anxiety medications (OR 2.63, 95% CI: 2.32-2.99; Pfeiffer, et al., 2009). Limitations are noted that data does not determine whether increased suicide risk is correlated to increased anti-anxiety medication use, or related to severity of anxiety symptoms, or a direct side effect of the medications themselves, but clearly the use of benzodiazepine is a marker for suicide risk (Pfeiffer et al., 2009).

Anticonvulsant and antipsychotic type medications are also used in attempts to control chronic anxiety with limited benefit and side effect potential. Antipsychotic medications may be prescribed as off-label use (Leslie, Mohamed, & Rosenheck, 2009). Antipsychotic medications are approved for schizophrenia and bipolar disorder, and some medications offer antidepressant benefits but are used for agitation in dementia, obsessive-compulsive disorder, and PTSD (Leslie et al., 2009). Psychopharmacologic interventions are associated with side effects such as drowsiness; stomach upset, foggy thinking, headache, and weight gain leading to dyslipidemias and diabetes (National Institute of Mental Health, 2016).

Cognitive Behavior Therapy (CBT) has been shown to be beneficial for improving coping skills when dealing with a trigger; however, commitment to treatment visits may be limited due to other obligations, clinician availability, or discomfort with the therapy process. Patients exhibiting early response to treatment are distinguished by their acceptance of the rationale for treatment, their reaction to homework, and a step-wise progressive approach to the sessions (Bradford et al., 2011). Patients with positive

social support predicted early response to treatment in a study on the association of worry symptoms and anxiety in elderly treated with CBT (Bradford et al., 2011). CBT shows longer benefit than medication use alone (Bradford et al. 2011). Psychiatric medications do not provide a cure for anxiety disorders, but they can reduce the symptoms of the disorder. However, not all patients will be able to tolerate psychotropic trials or will receive maximum benefit from them. Like psychiatric medication, psychotherapy offers benefit, but some patients will still experience chronic symptoms, so the need to explore alternative strategies to enhance symptom relief is imperative to providing patients safe options for anxiety management.

Complementary Alternative Method

Tai Chi and yoga practices are proposed to constitute a unique category or type of exercise referred to currently as meditative movement (Jahnke et al., 2010). Tai Chi has been shown to promote relaxation and decrease sympathetic output (Abbott & Lavretsky, 2013). Tai Chi is a Chinese marital art form sometimes referred to as "moving meditation" (National Center for Complementary and Alternative Medicine , 2009). Tai Chi offers a low-impact, weight-bearing, aerobic exercise.

A pilot study (n = 12) showed significant improvement in hyperarousal symptoms and insomnia but no significant improvements in anger or quality of life outcome scores (Staples, Hamilton, & Uddo, 2013). The study was to evaluate the feasibility and effectiveness of a yoga program as an adjunctive therapy for improving military related PTSD in veterans. The veterans participated in twice weekly sessions for 6 weeks. These

results suggested that this yoga program may be an effective adjunctive therapy for improving symptoms of PTSD (Staples et al., 2013).

Aerobic exercise has been shown to be an effective and cost-efficient treatment alternative or adjunct for a variety of anxiety disorders (Broman-Fulks & Story, 2008). Physical activity has been credited with positive distraction, improved stress response, and improved self-esteem (Merom et al., 2008). It is not uncommon for veterans to suffer physical limitations with exercise regimens due to physical injuries. Tai Chi may be practiced alone or in groups based on the participant's comfort level. In their research, Song et al. (2014) showed that anxiety exacerbation rate was reduced in elder patients who participated in Tai Chi exercise. Although not measured for this study, Tai Chi has been shown to improve lower extremity muscle function through conditioning, confidence in moving, and less pain complaint in other studies (Uhlig, Fongen, Steen, Christie, & Odegard, 2010). Tai Chi combines slow and gentle movements with mental focus. Tai Chi is a low impact activity equivalent to walking 6km/h. Tai Chi also causes moderate increase in heart rate (Uhlig et al., 2010). Tai Chi exercise may be a safe and useful strategy for individuals with physical limitations who may find strategies such as yoga more challenging physically yet continues to offer the mental health benefits. Tai Chi has potential to improve muscle strength, balance, sleep, and mood. Tai Chi has also had potential to reduce fatigue, pain, and stiffness, which is an additional benefit for veterans coping with PTSD and pain concurrently (National Center for Complementary and Alternative Medicine , 2009).

A literature review was conducted and peer-reviewed articles from 2009 to 2016 were retrieved from databases. Evidence supporting Tai Chi as an intervention specifically for mental health disorders such as PTSD or anxiety disorder are limited. However, use of Tai Chi intervention with depression is more widely reported. Of the 23 randomized control trials included in this review, 17 reported positive impact on depression symptoms with Tai Chi participation.

In a research study on the effect of Tai Chi exercise on the physical and mental health of elder patients coping with anxiety disorders, it was noted that patients managed with drug therapy and Tai Chi exercise had a lower recurrence rate (Song et al., 2014). In this study, 32 elder patients with anxiety disorder were randomly divided into an experimental and control group of 16 patients each. The control group was managed with drug therapy alone (Paroxetine 10mg twice daily for 45 days) and the experimental group was managed with Tai Chi and drug therapy. After 45 days of treatment, all participants completed the Hamilton Anxiety Scale and the Generic Quality of Life Inventory-74. Both groups stopped drug therapy but the group continuing Tai Chi exercise only had a 9.09% recurrence rate whereas the control group had a 42.86% recurrence rate (Song et al., 2014). On review, limitations of this study include simple medication trial and variable ranges of anxiety may exist for other populations; however, this research strongly suggests the benefits of Tai Chi exercise for patients with anxiety disorder such as PTSD.

A systematic review of randomized controlled trials of Tai Chi interventions published between 2002 and 2007 and another review from 1993 to 2007 was conducted

to determine the outcome benefits of Tai Chi practice (Abbott et al. 2013). The meta-analysis identified eight high quality randomized control trials that together included evaluations of anxiety, depression, mood, stress, general mental health, anger, positive and negative effect, self-esteem, life satisfaction, social interaction, and self-rated health. The review found that participants practicing for 1 hour up to 1 year reported increased psychological well-being, reduced stress (effect size 0.66; 95% CI 0.23-1.09), anxiety (ES 0.66, 95% CI, 0.29-1.03), and depression (ES 0.56, 95% CI, 0.31-0.80), and enhanced mood (ES 0.45, 95% CI, 0.20-0.69; Abbott, et al., 2013).

An experimental study utilizing 37 students exposed them to 90 arousing pleasant, unpleasant, and neutral pictures from the International Affective Picture System for 30 minutes after exercise rest. Anxiety state was measured before and 15 minutes after exercise and rest (Smith, 2012). State anxiety significantly decreased from baseline to after the exercise and seated rest conditions ($P = 0.003$). After the emotional picture-viewing period, state anxiety significantly increased to baseline values after the seated effect rest condition ($P = 0.001$) but remained reduced after the exercise condition suggesting the acute benefits of exercise on emotional resilience remains intact after exposure to arousing emotional stimuli (Smith, 2012).

A meta-analysis of 10 randomized controlled studies provided a pooled effect size of -3.25 (95%CI, -5.36 to -1.14; $P = 0.002$) supporting that yoga-based therapies have a positive benefit as adjunct treatment for psychiatric disorders (Cabral, Meyer, & Ames, 2011). Similar to Tai Chi, yoga encourages meditation, slow breathing, stretch, and pose to alleviate anxiety, depression, stress, and PTSD. In a different study, a yoga

intervention was held for 1 hour twice weekly for 6 weeks. The participants completed a PTSD checklist (PCL-M), Pittsburgh Sleep Quality Index (PSQI), State-Trait Anger Expression Inventiory-2 (STAXI-2) and a Quality of life (OQ-45.2) were completed at baseline and completion for comparison. There was a decrease in PTSD hyperarousal symptoms re-experiencing; PSQI results showed improvement in sleep and daytime function; STAXI-2 yielded positive change in overall anger expression and anger control; and OQ-45.2 showed reduced symptom distress and improved interpersonal functioning (Staples et al., 2013). No changes were noted in avoidance, use of sleep medications, and social role (Staples et al., 2013). Please see Table A for Literature Matrix.

Evidence Generated for the Doctoral Project

Participants

Participants were Veterans diagnosed with an anxiety disorder who participated in the initial 6-week pilot Tai Chi recreational program in 2015. These patients reported continued breakthrough symptoms with current treatment regimen and were referred to the recreational therapy department by their clinic providers for support in maintaining or improving functional independence and quality of life through active therapy and meaningful activities. Nine patients participated in the pilot program. After IRB approval (IRB # 07-21-17-0483667), questionnaires administered by staff were analyzed for themes.

Procedures

For data analysis, the questionnaires provided to the DNP student did not provide identifying data however the patient responses were assigned aliases such as “female

patient 1, male patient 1, female patient 2, male patient 2" and so forth to maintain the privacy of participants. Please see Appendix A for questions.

Protections

This project meets the characteristics of quality improvement. The quality improvement process involves evaluating and learning from experience. Review of patient medical records were not utilized. This project is based on follow up of the initial Tai Chi trial in which a group of Veterans met for one hour twice weekly for 6 weeks from July 2015 to July 2017. Questionnaire responses will be kept in a locked cabinet in the private home office of the DNP student for three years after completion of the project.

Analysis and Synthesis

Patient responses were collected by recreational therapy staff who participated in the quality improvement program. All responses were examined for qualitative coding and results will be reported to leadership for program recommendations. The feedback was analyzed for themes expressing reactions, skills, behaviors and results related to their Tai Chi practice. Based on these themes identified from the questionnaires and evidence-based literature, suggestions for maintaining a permanent Tai Chi program will be provided to leadership for consideration. It was expected that those still practicing Tai Chi would report continued and improving relief of symptoms.

Summary

By debriefing previous Tai Chi trial participants on their perceptions of their experiences, current evidence can be confirmed of the benefits for Veterans' emotional symptoms. The goal of CAM therapies including Tai Chi is to integrate as adjunct to

conventional medical practices to reduce patient symptoms and promote overall wellbeing. Given all Veterans may not improve with current evidence based psychotherapy and pharmacotherapy treatments, adding a simple and inexpensive Tai Chi intervention may be a valuable adjunctive therapy.

Section 4: Findings and Recommendation

Introduction

Exploring the patients' perceptions of their experience with Tai Chi practice in relation to their chronic symptoms provided information about the effectiveness of a complementary alternative therapy. The project question was: What are the benefits of a Tai Chi recreational therapy program in a large VA facility? Ideally, with regular Tai Chi practice patients will note a decrease in the use of pharmacological interventions, which includes less risk of side effects and cost. Tai Chi has potential to improve the quality of life for individuals with anxiety disorders. Literature reviews were completed on relevant research on Tai Chi outcomes for background insight into anticipated outcomes. Additional evidence generated for the project came from patient questionnaires. The questionnaires were completed nearing 2 years after the initial trial.

Findings and Implications

The initial group of patients met for one hour daily twice weekly for 6 weeks. A total of nine veterans participated in the pilot. There were three female patients. The patients endorsed various chronic complaints including chronic back pain, multiple chronic medical disorders, PTSD, and depression. Of the nine initial patients, five completed an open-ended questionnaire. Notation from the recreational therapist provided that two patients were unreachable and two patients declined to complete the questionnaire.

Using the Kirkpatrick model to summarize the response themes to the questionnaire, *(Reaction)* patients engaged in Tai Chi per referral from their clinical

providers for support with chronic symptom management. None of the patients had engaged in Tai Chi prior to the initial trial but likened it to yoga in theory. *(Learning)* the only regular physical activity that three patients endorsed was leisurely walking 2-3 times weekly averaging 20 minutes. All patients agreed that Tai Chi activity was not strenuous nor did it cause discomfort. One patient reported difficulty with learning the order of movements and positioning. *(Behavior)* all patients also noted positive socialization and distraction. *(Result)* only two patients have continued Tai Chi practice through the recreational therapy department led by DVD instruction in a group setting. All patients reported better management of anxiety, increased stamina, and back relief. The three patients not actively practicing Tai Chi report reported losing interest, schedule conflict, or transportation limitations as obstacles to participating with the recreational therapy program.

Information about the patients' psychotropic medication use pre-and post Tai Chi exposure was not obtained so follow up for endorsement of reduction of medication use could not be completed. For future consideration to gain further confirmation of Tai Chi practice benefit, patients should be questioned as to whether they attribute any reduction in medication use to the practice. Also, clinicians of participating patients could provide objective feedback if they attribute any changes in physical or mental health to Tai Chi practice. After Tai Chi practice, vital signs could be assessed for normal parameters if the patient has a history of elevated clinical measurements.

Recommendations

Tai Chi has great potential for benefit relative to continued practice. It is important that participants are provided every opportunity to continue with Tai Chi practice at their level of comfort. Tai Chi can be completed alone or in groups. Access to Tai Chi practice includes tutelage from trainer, DVD instruction, or printed materials. As telehealth access is becoming more popular with availability, Tai Chi can still be practiced in a group setting via clinical video conference. Providing different modes of training allows patients to practice at any time in their setting of preference.

Strengths and Limitations of the Project

Limitations were based on the fact that patients' primary exposure; triggers, and symptoms were variable in nature, which may have limited the exercise's benefit. Additionally, any intervention is only as useful as the patient's effort in utilizing its components to the fullest opportunity. Physical activity of any type is commonly known to carry emotional and physical benefits, so it is not clear if Tai Chi itself improved the patient's symptoms or merely the act of being active. Also, comradery among patients will have some positive emotional effect. As a DNP student, I was not able to engage directly with patient participants per IRB guidelines so detailed questions were not posed to them to gain responses on my specific anticipated benefits however the responses were confirmation of some benefits of Tai Chi practice. The strengths of the project were the access and availability of the recreational therapy team. Additionally, the VA hospital was already supportive of CAM therapy as there were other opportunities for veterans to participate in mind-body techniques. Tai Chi practice is in line with VA hospital's whole

health care model. This model encourages personalized, proactive, patient-driven treatment planning.

Section 5: Dissemination Plan

My plan is to disseminate this work locally by PowerPoint presentation to mental health and medical leadership for encouragement to continue to refer their patients to the Tai Chi recreational therapy program. Additionally, the PowerPoint presentation will be available for Physical Medicine & Rehabilitation Services to share across their discipline. I will seek to have the PowerPoint presentation posted to the Veterans Integrated Service Network intranet for regional and national VA hospital information. For nationwide civilian dissemination, I will submit my abstract and a possible poster presentation to nursing conferences for 2018. I will attempt to publish my abstract in nursing journals and newsletters.

Analysis of Self

Practitioner

As my knowledge of the scholarly process has grown I have improved as a practitioner by becoming more cognizant of evidence-based practice and the implementation process. As a practitioner, I am more interested in the origin and credibility of new information impacting policies and practice. As information and resources change, care evolves into latest trends in practice. I have vowed that I will not allow myself to be led blindly nor compromise my ethics at whim by not researching sources and rationale for practice recommendations. Furthermore, my scholarly journey has raised my interest and curiosity towards improving healthcare processes. I feel more empowered to contribute to nursing practice through scholarship.

Scholar

As a scholar, I am confident in utilizing analytical methods to critically appraise existing literature and other evidence relevant to practice. Scholarship influences public policy, both social and health. Public policy affects healthcare at every level including local, state, and federal government (Zaccagnini & White, 2011). Scholarship involves knowing how to locate relevant and up-to-date information from first or second-hand sources. Expanded healthcare and full practice authority for nurse practitioners are ongoing discussions for policy changes in my state. Both of these outcomes greatly impact access to care for patients. As a scholar, it is imperative that I maintain awareness and knowledge of ongoing issues that impact practice.

Project Manager

As a project manager, I had to plan and execute the phases of my project. Although I chair a committee at my work, this is a difficult role for me. It is not easy to maintain consistent grasp of the short and long-term goals of the project. A project manager needs to prioritize tasks against resources and level of importance within the boundaries of ethics and time limitations. I have had to improve my communication skills to extend to processes I didn't clearly understand and that had impaired my pace for completion of my project. In the future, I will take time to fully understand the responsibilities and expectations of my project stages prior to starting an endeavor.

Throughout my doctoral education, I have gained more understanding of the importance of patience and realistic expectations with the scholarly project process.

As a clinician, scholar, and project manager, I maintain the same goals in these roles. My goals are to reduce patient care cost and hospitalizations while concurrently improving wellness and access to care. To achieve the goals, I have to achieve open communication and unbiased judgment in all the roles. The roles are change agents in the field of healthcare.

Summary

The goal of this project was to examine gentle movement routines of Tai Chi for emotional benefits for veterans. However small the sample size, it appears that veterans can benefit from Tai Chi therapy for emotional symptoms. This project offered a glimpse into treatment therapies and benefit.

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Appendix A: Literature Matrix

Author/ Date	Grad-ing	Theoretical/Con-ceptual Framework	Research Question/Hypo-theses	Method-ology	Analysis & Results	Conclusions	Implications for Future research	Implication for practice
Barrow et.al., 2007	II	Effects on exercise tolerance, heart failure symptoms and quality of life	Change in the distance walked in the shuttle walk test; changes in symptom scores and quality of life indices	Random-ised parallel group study balanced for baseline variables	Depression scores measured by the SCL-90-R questionnaire compared with control groups	Tai Chi led to signifi-cant improve-ments in symptoms and quality of life	Larger studies need to be examined; more often performed the more the benefits	Tai Chi could be a valuable alternative to both the high and low intensity aerobic exercise regimens recommended for heart failure
Chou, 2008	II	Role of social support and cognitive capacity in the effect of Tai Chi on depressive symptoms among older pts. with clinical depression	Determine whether the effects of Tai Chi training on depressive symptoms in Chinese older pts. with depression remain statistically significant after social support	Random assigned intervent-ion and wait list group	Center for Epidemiological Studies Depression Scale (CES-D); Lubben Social Network Scale (LSNS); multiple regression analyses	Results indicate that the beneficial impact of Tai Chi on five measures of depressive symptoms remained significant when we	Futures studies should consider effects of Tai Chi on self-efficacy, self-concept, physical health, spiritual	Tai Chi in group activity in which practitioners could receive social support from their peers

Author/ Date	Grad-ing	Theoretical/Con-ceptual Framework	Research Question/Hypo-theses	Method-ology	Analysis & Results	Conclusions	Implications for Future research	Implication for practice
			was controlled			adjusted for age, gender and education	well-being and attribut-ion style	
Chou et.al., 2004, "Effect of Tai Chi…"	II	Tai Chi on psychological well-being	Tai Chi has a positive effect in reducing depressive symptoms compared with no treatment in older patients with depression	Randomly assigned to either the Tai Chi or control group of this research	CES-D; Multivariate analysis of variance (MANOVA)	Tai Chi is equally effective in reducing all four categories of depressive symptoms including somatic, psycho-logical, interper-sonal relation, well-being	Future studies should be conducted on larger sample size and inclusion of another control group	Alternative modes of physical activity may be perceived as being more culturally appropriate to particular groups of aged population
Decha-mps et.al., 2009	II	Alternative approaches to wt. control and physical activity	Multidiscip-linary wt. mgmt. for sedentary obese women	Random-ized intervent-ion trial with	Changes in wt., body composition, heart rate, blood pressure,	T.C. improved blood pressure, mood, fat	Conduct on larger scale on how obese pts. adhere to	T.C. can enhance adhesion and encourage additional

Author/ Date	Grad-ing	Theoretical/Con-ceptual Framework	Research Question/Hypo-theses	Method-ology	Analysis & Results	Conclusions	Implications for Future research	Implication for practice
				blinded medical provider	mobility scores, mood, Three Factor Eating Questionnaire scores, General Self-Efficacy	percentage	exercise programs	physical activity
Fran-sen et.al., 2007	II	Tai Chi for physical and psychological well-being	Is Tai Chi or Hydro-therapy classes more beneficial?	RCT	Depression, Anxiety and Stress Scale (DASS21)	Tai Chi improved psycho-logical symptoms	Future studies should include diverse populations	Tai Chi option is appropriate for various patient needs
Frye et.al., 2007	II	Tai Chi for psychological and physical well-being	Does Tai Chi provide same benefits as low impact exercise?	RCT	CES-D; State-Trait Anxiety Inventory (STAI)	Tai Chi is cost effective for improving symptoms but not any more than low impact exercise	Future studies should be blinded and on larger scale	Exercise programs should be individualized to me the needs and demeanor of the patients they serve
Ham-mon & Free-man 2006	II	Activity and education improve health	Which exercise/educat-ion regimen benefits Fibromyalgia well-being	Random-ized parallel group	Fibromyalgia Impact Questionnaire with eight subscales including depression	Short term improve-ment in symptoms	Future studies should consider triage to lessen with-draws	Low cost exercise is more accessible to users

Author/ Date	Grad-ing	Theoretical/Con-ceptual Framework	Research Question/Hypo-theses	Method-ology	Analysis & Results	Conclusions	Implications for Future research	Implication for practice
Irwin et.al., 2014	II	Comparative efficacy for behavioral therapy	What is the efficacy of T.C. on depressive symptoms?	RCT	Depressive symptoms IDS-C	T.C. showed improve-ments in depressive symptoms	Explore previous beliefs and expectations regarding alternative therapies	Behavioral treatment has benefit for mood symptoms
Irwin et.al., 2007	II	Behavioral intervention for immune stimulation, depression	What are the effects of T.C. on immunity, depression?	RCT	Beck Depression scale	T.C.aug-ments vaccine for immune system and reduces depression sx	Gage current health in future studies	Behavioral therapy provides holistic feedback
Jin, 1989	II	Behavioral therapy efficacy for stress	What is T.C. efficacy for post stress recovery?	RCT	Profile of Mood States (POMS) with depression subscale; MANOVA	T.C. significantly improved mood subscales	Study participant motivate-ion for stress mgmt	T.C. offers technique for stress mgmt. and recovery
Lee et.al., 2008	II	T.C. efficacy for emotional sx ankylosing spondylitis	Effects of T.C. on depression, activity of pts with ankylosing spondylitis	RCT	Center for Epidemiologic Studies Depression Scale (CES-D)	T.C. improve physical and emotional sx.	Future research needs to consider placebo effect	T.C. offers alternative mgmt. to physical disorders with emotional sx
Li et.al.,	II	Tai Chi multidimension-	Whether T.C. program	RCT	Health perceptions	T.C. group reported	Consider whether	Exercise for psychological

Author/ Date	Grad-ing	Theoretical/Con-ceptual Framework	Research Question/Hypo-theses	Method-ology	Analysis & Results	Conclusions	Implications for Future research	Implication for practice
2001		al psychological well-being	enhance psychological well-being?		including depression (CES-D)	greater reduction in depression	change in subjective well- being improves physical well-being	well-being
Liu et.al., 2015	II	T.C. and Centrally obese people with elevated depression symptoms	Does T.C. reduce depression & anxiety symptoms	RTC	CES-D; DASS21	T.C. group showed improvement in anxiety and depression in obese adults	Longer follow up needs to be considered in future students	T.C can augment medical care for emotional symptoms
Wang, 2008	II	T.C. for RA and mind-body	Does T.C. benefit mind-body for patients with RA	RCT	CES-D	T.C. reduced depression in patients with RA	Extend duration of trial and examine psychology-ical adaptations	T.C. is a safe adjunctive & beneficial therapy for patients with RA
Wang et.al., 2009	II	T.C. for knee OA	T.C. evaluation for Knee OA sx including depression	RCT	CES-D	T.C. improved sx including depression	Consider generalizat-ion ability of various T.C. styles	T.C. effective for sx of OA including depression
Wang et.al., 2010	II	Wellness education, T.C. Fibromyalgia	Does T.C. benefit Fibromyalgia	RCT	CES-D	T.C. improved depression in	Assess placebo effect	T.C. is beneficial for adjunctive

Author/ Date	Grad-ing	Theoretical/Con-ceptual Framework	Research Question/Hypo-theses	Method-ology	Analysis & Results	Conclusions	Implications for Future research	Implication for practice
		benefits	sx including depression?			patients with fibromyalgia		therapy for fibromyalgia depression sx
Yeh et.al., 2011	II	T.C. helpful for variety of medical issues	Tai Chi may improve QOL for HF patients	RCT	Profile of Mood States including subscale for depression	T.C. improved depression sx	Increase sample size	T.C. has potential to enhance standard care
Yeung et.al., 2012	II	Culturally sanctioned interventions for depression	What is T.C. feasibility, safety and efficacy for MDD	RCT	Hamilton Rating Scale for depression	T.C. improved depression sx	Consider impact of social interaction	T.C. is safe and effective for cultural groups

Appendix B: Questions

1. What were your reasons for participating in the Tai Chi trial?
2. What were your expectations of Tai Chi practice?
3. What was your experience with doing Tai Chi?
4. What are some ways that Tai Chi is different from your usual physical activity?
5. What do you like about Tai Chi?
6. What don't you like about Tai Chi?
7. In what ways were the classes engaging for you?
8. What have been the benefits of Tai Chi?
9. Are you still practicing Tai Chi?
10. If no longer practicing Tai Chi, why not?

Appendix C: Responses to Questions

Kirkpatrick Model	LEVEL 1 REACTION	LEVEL 2 LEARNING	LEVEL 3 BEHAVIOR	LEVEL 4 RESULT
POSTIVE FEEDBACK	Enjoyed interacting with peers and staff Felt comfortable in environment during sessions Positive distraction	No strenuous or fast paced activity	Socially supportive Fun activity 2 patients have continued Tai Chi practice	Increased stamina Better management of anxiety Some back pain relief during practice
NEGATIVE FEEDBACK		Difficulty learning order of movements and positioning	3 patients are no longer participating in Tai Chi practice	
NETURAL FEEDBACK	Coping with chronic back pain, multiple chronic medical disorders, PTSD, Depression. Told Anxiety and/or Back pain could be improved. Only vague idea of Tai Chi	No regular physical except ADLs previously Leisurely walking previously		